

How to Facilitate Weight Gain in Equine With Body Scores of 1.0–2.5

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1. Introduction

The Georgia Department of Agriculture¹ enforces the Humane Care for Equines Act that allows the Department, under the recommendation of a licensed veterinarian, under state or federal employment, to legally impound equine that are not receiving "adequate food and water."¹ Horses typically range in body score of 1–2 on the Henneke Scale at impoundment and require 45–90 days of care before they are a body score of at least 4.² Equine are either returned to their owners under a consent order or are rehabilitated and sold at auction when a consent order is not obtained.¹ In >10 yrs in private practice, I was never consulted by an owner to treat a horse with a body score <3 except for three colic emergencies.² While working with law enforcement in Oklahoma, I treated less than five equine with body scores <3 in a 10-yr period.² This treatment was only for evaluation and treatment for short periods of time before their placement in rescue facilities. The Unwanted Horse Coalition³ documents and hopes to reduce the escalating number of horses that are abandoned and/or starved in this country.³ The method described below was the systematic approach used in managing impounded or owner-released equine at Georgia's Impound Facilities while I directed the Equine

Section.¹ Our results indicate a shorter period of rehabilitation than stated when following the *AAEP Care Guidelines for Equine Rescue and Retirement Facilities*.⁴ Georgia's guidelines may assist a practitioner faced with designing a treatment regimen for emaciated to thin equine.²

2. Materials and Methods

Georgia Equine Section² personnel are trained to use the Henneke scoring system for each of the six areas of fat deposition as described in the literature. These scores are added and divided by six to achieve an overall body score.² The mathematical results are rounded to the closest 0.25 increment instead of rounding to the closest whole number, which is the method that I was taught in veterinary school.² A 1.0 is emaciated, 4.0–6.0 is considered acceptable, and 5.0 is considered the ideal body score.²

Please note that all hay and grain measurements are for equine whose appropriate weight at body score 5.0 is between 700 and 1100 lbs; therefore, amounts will need to be adjusted for the current weight and expected maintenance weight of the equine being managed.² We did not use an exact system of measuring hay and grain by weight as typically recommended, but used the system commonly used among horsemen (i.e., the flake and the

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Table 1. Nutritional Data of Grain Rations Utilized

Grain Types	Protein % (Min)	Fat % (Min)	Fiber % (Max)
Growing Ration # 1	16.0	6.0	7.0
Growing Ration # 2	14.5	4.5	15.0
Equine Forage Balancer	32.0	5.0	5.0
Senior Ration # 1	14.0	5.0	16.0
Senior Ration # 2	14.0	4.5	16.0

scoop). Approximate weights of hay and grain are given to show the size of flake and scoop used.

Water is offered free choice, hay is fed on the ground, and equine are either stalled for feeding or grouped by similar age and temperament to facilitate feeding separately when housed in pastures or paddocks. Shelter is provided by barns, trees, and/or sheds. Blankets are used on a temporary basis to provide extra warmth when needed to maintain core temperatures. A midnight feeding of alfalfa mix and/or coastal bermuda hay^a is added at the barn manager's discretion when overnight temperatures are projected to be below freezing.

Equine at the Critical Care Facility are stalled and/or placed into paddocks and/or hand grazed daily (weather permitting). Horses at the other larger facility are stalled and then turned out when weather and disposition allows or are pastured; however, this schedule is dependent on their body score and exercise needs. Choice of impoundment facility is determined based on numbers housed at each facility, sexes of equine impounded, and distance from the owner's premises to the impoundment facilities. Equine are moved to the larger facility before sale date, and grain rations are changed over a 2-wk period as necessary. Grain ration for growing and senior equine are different at each facility because of local sources for these rations.

Within 24 hrs of impoundment, a complete physical examination, photographs, palpable body score, and either weight tape or scale measurement are taken. Blood is drawn for a complete blood count, serum biochemistry, and equine infectious anemia testing. Paste electrolytes and probiotics are orally administered.

Food on days 1–3 consists of a flake (5–6 lbs) of ~70% alfalfa/30% timothy and a flake (3–4 lbs) of long-stem coastal bermuda hay^a, both given three times per day. Initially, the alfalfa-only mix was being used, but this seemed to contribute to a transient diarrhea in some equine. Adding the long-stem coastal bermuda hay^a, consisting of stems that are usually 5–7 in, markedly decreased the number of diarrhea cases requiring bismuth sulfate treatment.

On day 4, grain is introduced but is dependent on the estimated age and life stage of the equine. All equine are fed hay first at each feeding before grain is fed. Equine aged ≤3 yr as well as lactating

mares and those visually in late gestation are fed a pelleted ration labeled for growing horses twice a day at a rate of 1 cup/feeding. Feed is increased gradually over a 2-wk period until each equine is eating a 3-quart scoop of grain twice a day (4.5–5.0 lbs). Equine 4–16 yr of age that are not in late gestation or lactating are fed steamed oats starting with 1 cup of oats and 0.25 cup of an equine forage balancer twice daily. This is also increased over a 2-wk period until a 3-quart scoop of steamed oats and a 1 cup of forage balancer are fed per label directions at each feeding. Horses ≥17 yr of age or those with extensive dental abnormalities are fed a senior-labeled ration at a rate of a 3-quart scoop (4.5–5.0 lbs) twice daily. Grain is wet thoroughly to create a slurry for those with dental abnormalities that cause quidding or excessive dropping of grain. Either a growing horse pellet or senior ration will be fed as deemed appropriate by the examining veterinarian. Horses with extreme dental abnormalities may not receive any coastal hay until the abnormalities are corrected because of the increased risk of choking and colic. A pinch of feed-grade salt (0.125–0.25 teaspoon) is added daily to the grain ration, because salt blocks are not used at the impoundment facilities.

On day 7, equine are dewormed with either a pyrantel pamoate or fenbendazole product. The timing of deworming may be moved forward 1 day or delayed 3 days if weather or scheduling necessitates. Coastal bermuda hay^a is also discontinued at this time.

Starting on day 10, a psyllium product is administered per label directions as a top dressing. Psyllium powder is used, because it is a more economical product as long as the equine will consume it. Psyllium⁵ pellets or crumbles are used if palatability problems arise or when the equine is consuming a slurry; in these cases, the psyllium product is fed separately from the wet grain. A psyllium treatment regimen is repeated monthly using the label directions until the equine is removed from the impoundment facility.

Thirty days after the first deworming, all equine >6 mo of age are dewormed with an ivermectin product. Ivermectin is used every 60 days as long as the equine remain in our custody. When equine are <6 mo of age, pyrantel pamoate is used monthly until equine are 6 mo of age; at that time, ivermectin is administered. Other deworming regimens have been used previously when specific conditions war-

rant (i.e., diagnosis of tapeworms or failure to gain adequate weight require a different regimen).

After equine have reached at least a 2.0 or better body score, essential dental procedures are completed.² After achieving a body score approaching 5.0, the alfalfa-mix hay is decreased. Instead, coastal bermuda hay^a is reintroduced, except for mares in the last trimester, lactating mares, and weanlings. The 12:00 pm hay feeding is replaced by coastal bermuda hay^a for 3 days, followed by the morning hay feeding for 7 days, and then the evening hay feeding. If hay is left from the earlier feeding, additional hay is not fed until at least one-half of the hay is eaten. Equine are maintained on coastal Bermuda hay only, and the grain ration is adjusted to maintain a body score of 5.0–5.5.²

3. Results

I examined the 65 equine that were impounded by the Georgia Department of Agriculture personnel from July 26, 2007 to January 12, 2008. These equine were treated following the guidelines above with the some exceptions. Three horses were released to the Bureau of Land Management custody and therefore, were treated by these guidelines for only 1 wk. Two horses were impounded with body scores >4.0 and did not need to gain a significant amount of weight under this program.² One horse with a body score of 1.0 died within 1 wk of impoundment from complications caused by parasitism.²

Equine fed in this manner typically gain 7.5–12.0% of their initial body weight per 1 mo. Grain was increased in 0.25-scoop increments up to 1.5 scoops (7.0–7.5 lbs) twice daily to reach or maintain this rate of gain when necessary. Equine are weighed at impoundment, after 2 wk, at 30 days, and then before settlement conferences, sales, or as deemed necessary. Equine that do not gain appropriately are reevaluated. Equine that are eating a slurry may be transitioned to oats and forage balancer after dental procedures are completed. After their foals are weaned, mares are transitioned to oats and balancer when age appropriate.

4. Discussion

Equine with body scores of 1.0–2.5 present a special challenge to the veterinarian.² Using both a quality legume-mix hay and a grain ration in an easy-to-follow regimen allows equine to gain weight quickly. Although vulval tilts, dermatophilosis, heart murmurs, and dental abnormalities were frequently noted on the initial veterinary examination, the majority of these issues at least partially resolved and did not seem to significantly alter the weight gain in these impounded equine. The first 21 equine were fed the alfalfa/timothy mix hay as the only hay source, and several had transient diar-

rhea or loose stool that was treated with bismuth sulfate. The feeding program was modified to include long-stem coastal bermuda for the first wk of feeding, and the rate of loose stool or diarrhea was drastically reduced.

Within 24–72 h of the first deworming on day 7, 2 of the 65 equine had clinical signs consistent with a gas colic that resolved with hand walking and flunixin-meglamine treatment. Two of the body score 1.0 equine required the use of an Anderson sling within 1 wk of admittance; one of these died from verminous infarction of the mesenteric artery caused by a heavy parasite load that was found on necropsy. Coughing and whitish nasal discharge without fever was observed in many weanlings and yearlings after the first deworming, and this was attributed to larval migration of ascarids. This resolved without treatment within 7–10 days.

This feeding and treatment regimen was compared informally to the field results of equine under veterinary care that received grass hay, higher levels of grain, and frequently, supplemental fat. Weight-gain results using the impound methodology resulted in at least a 50% reduction of the time needed to reach goal weights compared with field results. These times were also shorter than the 3–5 mo reported in the American Association of Equine Practitioners *Care Guidelines for Equine Rescue and Retirement Facilities*.⁴ A weight gain of 7.5–12.0% of their initial body weight per 1 mo is a measurable outcome that the horse owner can readily appreciate by using an inexpensive weight tape.

Equine that are drastically underweight will eat any available forage very close to the ground as well as consume forage growing on or near manure; they may even eat manure. This behavior results in an increase in both parasite and sand burdens. Additionally, owners that fail to provide adequate food and water do not typically deworm their equine on a regular basis. A deworming program, a sand-treatment regimen, and hay and grain guidelines in easy-to-understand units make this a client-compliant program. Furthermore, this is a relatively quick regimen that is easy to apply to large numbers of thin to emaciated equine.

References and Footnote

1. Georgia Legislature. Humane care for equines act. *Official Code of Georgia Annotated* 1992;chapter 13 of title 4.
2. Henneke D. *Equine body scoring system*. College Station, Texas; Texas A&M, 1983.
3. Unwanted Horse Coalition. The problem of the unwanted horse: own responsibly. Available online at www.unwantedhorsecoalition.org. Accessed on August 22, 2008.
4. Akin M, Blea J, Douglas C, et al. AAEP guidelines for equine rescue and retirement facilities. Available online at www.aaep.org. Accessed on August 22, 2008.

^aSandClear™, Farnam Companies, Inc., Phoenix, AZ 85067.